

## WHAT IS CLAIMED IS:

1     1.     A sensor apparatus comprising:  
2             a constant-voltage circuit for stabilizing a power supply voltage applied  
3 directly thereto through a power supply terminal to produce a constant voltage;  
4             an oscillation circuit for outputting an oscillation frequency on the basis of  
5 the applied voltage;  
6             a switch circuit for setting a first switching condition for applying said  
7 constant voltage from said constant-voltage circuit to said oscillation circuit and a  
8 second switching condition for applying said power supply voltage from said  
9 power supply terminal directly to said oscillation circuit; and  
10            an A/D conversion circuit made to operate in a state where said constant  
11 voltage from said constant-voltage circuit is used as a drive voltage therefor, and  
12 made to carry out sampling processing on analog data on the basis of said  
13 oscillation frequency inputted from said oscillation circuit to produce and output  
14 digital data,  
15            wherein said switch circuit is placed into said first switching condition  
16 when at least said A/D conversion circuit produces and outputs said digital data.

1     2.     The apparatus according to claim 1, further comprising a  
2 digital circuit made to operate in a state where said power supply voltage applied  
3 directly through said power supply terminal is used as a drive voltage therefor,  
4 and made to carry out correction arithmetic operations on said digital data  
5 inputted from said A/D conversion circuit on the basis of said oscillation  
6 frequency inputted from said oscillation circuit, so that, after the output of said  
7 digital data from said A/D conversion circuit reaches completion, said switch  
8 circuit is placed into said second switching condition and said constant-voltage  
9 circuit is placed into an operation stopped condition.

1     3.     A sensor apparatus comprising:

2           a first constant-voltage circuit for stabilizing a power supply voltage  
3 applied directly thereto through a power supply terminal to produce a constant  
4 voltage;  
5           a second constant-voltage circuit for stabilizing said power supply voltage  
6 applied directly thereto through said power supply terminal to produce a constant  
7 voltage;  
8           an oscillation circuit for outputting an oscillation frequency on the basis of  
9 said constant voltage applied from said second constant-voltage circuit; and  
10          an A/D conversion circuit made to operate in a state where said constant  
11 voltage from said first constant-voltage circuit is used as a drive voltage therefor,  
12 and made to carry out sampling processing on analog data on the basis of said  
13 oscillation frequency inputted from said oscillation circuit to produce and output  
14 digital data.

1   4.     The apparatus according to claim 3, further comprising a  
2 digital circuit made to operate in a state where said power supply voltage applied  
3 directly through said power supply terminal is used as a drive voltage therefor,  
4 and made to carry out correction arithmetic operations on said digital data  
5 inputted from said A/D conversion circuit on the basis of said oscillation  
6 frequency inputted from said oscillation circuit, so that, after the output of said  
7 digital data from said A/D conversion circuit reaches completion, said first  
8 constant-voltage circuit is placed into an operation stopped condition.

1   5.     A sensor apparatus comprising:  
2           a constant-voltage circuit for stabilizing a power supply voltage applied  
3 directly thereto through a power supply terminal to produce a constant voltage;  
4           a first oscillation circuit for outputting an oscillation frequency on the  
5 basis of said constant voltage applied from said constant-voltage circuit; and

6           an A/D conversion circuit made to operate in a state where said constant  
7   voltage from said constant-voltage circuit is used as a drive voltage therefor, and  
8   made to carry out sampling processing on analog data on the basis of said  
9   oscillation frequency inputted from said first oscillation circuit to produce and  
10   output digital data.

1   6.     The apparatus according to according to claim 5, further comprising:  
2           a second oscillation circuit for outputting an oscillation frequency on the  
3   basis of said power supply voltage applied directly through said power supply  
4   terminal; and  
5           a digital circuit made to operate in a state where said power supply voltage  
6   applied directly through said power supply terminal is used as a drive voltage  
7   therefor, and made to carry out correction arithmetic operations on said digital  
8   data inputted from said A/D conversion circuit on the basis of said oscillation  
9   frequency inputted from said second oscillation circuit,  
10          so that, after the output of said digital data from said A/D conversion  
11   circuit reaches completion, said constant-voltage circuit is placed into an  
12   operation stopped condition and said first oscillation circuit is placed into an  
13   operation stopped condition.